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Amendments to the Claims

1. (currently amended) A method for automatically identifying tokens associated
with an event in video sequences containing individual takes and extracting
information contained thereon including the steps of: classifying the candidate
regions into token or non-token, locating tokens in candidate regions, locating
information on the token, interpreting the information on the token, performing a
confidence analysis on the information to ensure that the information was
interpreted correctly, wherein the method further includes the steps of: detecting
boundaries between individual takes, pre-selecting candidate regions in images of
the video sequence following or preceding a detected boundary prior to the step of
classifying the candidate regions, and that the method also further includes the
steps of merging information of consecutive images into a single, coherent set of
information, and detecting changes in the visual appearance of the token, the
changes ~~signalling~~ signaling a particular point of an event, after the step of
performing the confidence analysis.

2. (original) The method of claim 1, wherein after detecting a boundary between
individual takes a timer is set, upon time-out thereof the identification process is
terminated.

3. (original) The method of claim 1, wherein detecting boundaries between
individual takes includes the steps of: creating a histogram from image properties
for consecutive images, calculating the distance between filtered histograms of
consecutive images, comparing the calculated distance to a preset threshold, and
issuing a signal indicating a boundary is detected upon the distance exceeding the
threshold.

4. (original) The method of claim 1, wherein pre-selecting candidate regions in
candidate images includes the steps of: defining a reference feature value set
corresponding to tokens, scanning the image at varying locations using a suitably
shaped scanning window; computing a feature value set for each scanning
window location; comparing each feature value set with the reference feature
value set, and ranking the scanning windows containing feature value sets
according to their distance to the reference feature value set.

5. (original) The method of claim 1, wherein classifying the candidate regions into

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token or non-token includes the steps of: calculating feature values from the
candidate regions, comparing the calculated feature values to known classified
feature values of reference images, assigning classifiers to the respective
candidate regions, and assigning a classification confidence value to the classified
candidate regions.

6. (original) The method of claim 1, wherein locating tokens in the candidate
regions includes the steps of: scanning the candidate region using a suitably
shaped scanning window, calculating coefficients describing the correlation
between the scanning window and a reference image of a token, averaging the
coefficients, thereby defining a matching confidence value, selecting the scanning
window having the highest confidence value as candidate window.

7. (original) The method of claim 6, wherein the scanning window and/or the
reference image is decimated or interpolated in its spatial resolution prior to
calculating the correlation coefficients, resulting in a corresponding number of
pixels for the scanning window and the reference image.

8. (original) The method of claim 6, wherein the candidate region is re-classified to
non-token if the confidence value is below a preset threshold.

9. (original) The method of claim 1, wherein locating information on the token
includes the steps of: cutting a sub-image from the candidate image using size
and position data from the token localization process, constructing a probability
map of the sub-image describing the probability that a pixel of the sub-image
belongs to information on the token, and selecting an area of the sub-image with
maximum probability values.

10. (original) The method of claim 9, wherein the probability is obtained by
comparing pixel properties of the sub-image to pre-defined pixel properties
belonging to information elements.

11. (currently amended) The method of claims 1 and 9, wherein interpreting the
information contained on the token includes the steps of: rotating the selected
sub-image area with maximum probability to bring the information contained
therein into horizontal orientation, binarizing the probability map values of the sub-
image area, filtering the binarized map, and performing an optical character

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. recognition on the filtered map.

12. (original) The method of claim 1, wherein a confidence analysis is effected by checking information extracted from consecutive images for consistency.

13. (original) The method of claim 1, wherein merging information elements includes replacing mismatching information elements and/or information elements having low confidence with interpolated information elements.

14. (original) The method of claim 1, wherein detecting changes in the visual appearance of the token includes the steps of: detecting and locating parts of the token subject to change by analysing visual features in candidate regions and comparing the visual features to pre-determined visual features of tokens, monitoring the change in visual appearance of the parts subject to change by comparing detected visual features in consecutive images, and outputting data describing the degree of change with regard to a pre-determined starting and/or end point.

15. (original) The method of claim 14, wherein the visual features are translated into simplified models for analysis and monitoring.

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